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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/516,340

03/22/2005

Leigh Trevor Canham

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3058

23117

7590

06/12/2008

NIXON & VANDERHYE, PC  
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EXAMINER

SCHILLINGER, ANN M

ART UNIT

PAPER NUMBER

3774

MAIL DATE

DELIVERY MODE

06/12/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/516,340	<b>Applicant(s)</b> CANHAM ET AL.	
	<b>Examiner</b> ANN SCHILLINGER	<b>Art Unit</b> 3774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13, 20, and 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aston et al. (US Pub. No. 2004/0010313) in view of DeGrado et al. (US Pub. No. 2004/0202639). Aston discloses the following of the claimed invention: a process for preparing an orthopedic scaffold (paragraphs 0011-0014), forming porous blocks (paragraphs 0026) comprising bioactive silicon, such as polycrystalline silicon, and polycaprolactone (paragraphs 0020, 0040, 0120-0121). The materials are composed by heating a mixture of these components in their powder form, and molding them to a desired block shape (paragraphs 0140-0142). Aston et al. does not disclose using a self-assembly treatment to adhere the blocks together. DeGrado et al. teaches using such a treatment on implanted, biological structures in paragraphs 0141-0153 for the purpose of allowing the treated structures to more efficiently adhere to each other. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a self-assembly treatment to the orthopedic scaffolding in order to allow the structures to more efficiently adhere to one another.

Regarding claims 10 and 11, Aston et al. and DeGrado et al. disclose the invention substantially as claimed, however, they do not disclose the mass ratio ranges of silicon and an organic polymer. It would have been obvious to one having ordinary skill in the art at the time

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the invention was made to use these values, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering an optimum value or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233; *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aston et al. in view of DeGrado et al., as shown in claim 1, further in view of Lee et al. (US Pat. No. 6,033,582). Aston et al., as modified by DeGrado et al., discloses the invention substantially as claimed, however, they do not disclose exposing the device to oxygen-rich plasma. Lee et al. teaches exposing the surfaces of medical implants to oxygen-rich plasma in col. 6, lines 51 through col. 7, lines 9 and col. 12, lines 27 through col. 13, lines 65 for the purpose of increasing its reactivity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to expose the device to oxygen-rich plasma in order to induce bone-like apatite formation.

Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aston et al. in view of DeGrado et al., as shown in claim 1, further in view of Lally et al. (US Pat. No. 7,329,415). Aston et al., as modified by DeGrado et al., discloses the invention substantially as claimed, however, they do not disclose and a coupling agent and increasing the silicon exposed on the blocks. Lally et al. teaches a biological device with increased silicon and a coupling agent in col. 8, lines 38-60 for the purpose of increasing the device's stability. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to treat the device with increased silicon and a coupling agent in order to increase the device's stability.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aston et al. in view of DeGrado et al., as shown in claim 1, further in view of Nonami et al. (US Pat. No. 5,344,456). Aston et al., as modified by DeGrado et al., discloses the invention substantially as claimed, however, they do not disclose treating the device with heat. Nonami et al. teaches tissue replacement devices that are treated with heat in col. 7, lines 5-25 for the purpose of increasing the strength of the device. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to treat the device with heat in order to increase the device's strength.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANN SCHILLINGER whose telephone number is (571)272-6652. The examiner can normally be reached on Mon. thru Fri. 9 a.m. to 4 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Isabella can be reached on (571) 272-4749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ann Schillinger/  
Examiner, Art Unit 3774

/Corrine M McDermott/  
Supervisory Patent Examiner, Art Unit 3738